

CLAIMS

1. A local site communication system providing wireless
communication with a mobile terminal in a local site and cooperating with a
public communication system including a public service telephone network and
a cellular communication network having a plurality of radio base stations
covering a plurality of cells where switching of mobile terminal communication
links with said public communication system is controlled by a mobile switching
center, said local site communication system comprising:

- a broadband connection between said local site and an internet;
- a wireless local site network in said local site and communicating data
between said broadband connection and said mobile terminal
when said mobile terminal is located in said local site; and
- a cyber base station connected to the internet and communicating data
between said broadband connection and said mobile switching
center whereby said mobile terminal when located at said local
site connects to said public communication system via said
wireless local site network, said broadband connection, the
internet and said cyber base station.

2. The local site communication system of claim 1, further
comprising a voice client converting data between wireless signals on said
wireless local site network and internet protocol signals on said broadband
connection.

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3. The local site communication system of claim 2, wherein
said voice client adds internet protocol overhead to data received from said
mobile terminal and to be sent from said wireless local site network to said
cyber base station, and removes internet protocol overhead from data received
from said cyber base station.

4. The local site communication system of claim 2, wherein
said data communicated by said cyber base station includes a neighbor cell list
for said local site communication system.

5. The local site communication system of claim 1, wherein
said cyber base station communicates information on a control channel, and
said control channel information includes internet protocol addresses.

6. The local site communication system of claim 1, wherein
said cyber base station mimics a radio base station to said mobile switching
center.

7. The local site communication system of claim 1, wherein
said wireless local site network is a Bluetooth and said local site
communication system communicates with a mobile terminal having cellular
and Bluetooth communication interfaces.

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8. The local site communication system of claim 1, wherein
said local site communication system provides wireless communication
with mobile terminals in a plurality of local sites each having
a broadband connection to the internet, and
a wireless local site network communicating data between said
broadband connection and a selected mobile terminal
when said selected mobile terminal is located at said local
site; and
said cyber base station communicates data between said broadband
connections and said mobile switching center.

9. The local site communication system of claim 8, wherein
said cyber base station mimics a radio base station to said mobile switching
center.

10. The local site communication system of claim 8, wherein
said broadband connections are cables.

11. The local site communication system of claim 1, wherein
said local site is located in one of said plurality of cells covered by one of said
radio base stations, and wherein switching of said mobile terminal
communication links of said cyber base station with said public communication
system is controlled by said mobile switching center controlling switching of
said mobile terminal communication links of said one radio base station with
said public communication system.

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12. A wireless communication system, comprising:

2 a plurality of cells each served by a radio base station via wireless
signals;

4 a plurality of low power wireless local site networks
located in said cells, said wireless local site
6 networks served by a cyber base station via an
internet and including a low power transceiver for
8 communicating with mobile terminals;

10 a mobile switching center controlling said cyber base station and said
radio base stations.

13. The wireless communication system of claim 12, wherein
2 said cyber base station communicates information on a control channel, and
said control channel information includes internet protocol addresses.

14. The wireless communication system of claim 12, further
2 comprising a voice client at each of said wireless local site networks, said
voice clients converting data between wireless signals on said wireless local
4 site network and internet protocol signals on the internet.

15. The local site communication system of claim 14, wherein
2 said voice client at each of said wireless local site networks adds internet
protocol overhead to data received from said mobile terminal and to be sent
4 from said wireless local site network to said cyber base station, and removes
internet protocol overhead from data received from said cyber base station.

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2 16. The local site communication system of claim 12, wherein
said cyber base station mimics said radio base stations to said mobile
switching center.

2 17. The wireless communication system of claim 12, wherein
said cells each have a list of neighboring cells, and said cyber base station is
4 included in said list of neighboring cells for each of said cells within which said
plurality of low power wireless local site networks is located.

2 18. The wireless communication system of claim 12, wherein
each of said wireless local site network is a Bluetooth.

2 19. The wireless communication system of claim 12, further
comprising broadband connections between said wireless local site networks
and the internet.

2 20. The wireless communication system of claim 19, wherein
said broadband connections are cables.

2 21. The wireless communication system of claim 12, wherein
said mobile switching center controls said cyber base station like a pico base
station.

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22. A wireless local site network providing wireless
communication with a selected mobile terminal in a local site having a
broadband connection to an internet and cooperating with a communication
network having a plurality of base stations covering a plurality of cells where
switching of mobile terminal communication links with said communication
network is controlled by a mobile switching center and further cooperating with
a cyber base station connected to the internet and also controlled by the
mobile switching center, said wireless local site network comprising:

- an interface to the internet for communicating between said wireless
local site network and said cyber base station;
- a transceiver for communicating with a mobile terminal when a mobile
terminal is located at said local site; and
- a voice client converting between wireless data used by said
transceiver and internet protocol data used by said interface.

23. The wireless local site network of claim 22, wherein said
voice client adds internet protocol overhead to data received from said mobile
terminal and to be sent from said wireless local site network to said cyber base
station, and removes internet protocol overhead from data received from said
cyber base station.

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24. A method of handing off a mobile terminal from a first
2 traffic channel with a first cell to a second traffic channel of a second cell
during a call, wherein one of said cells communicates via a high power
4 wireless base station and the other of said cells communicates via a low power
wireless local site network and an internet, comprising
6 determining whether to execute a handoff from said first cell to said
second cell;
8 creating said second traffic channel when it is determined to execute a
handoff; and
10 when said second traffic channel is created, moving said call to said
second traffic channel and terminating said first traffic channel;
12 wherein one of said first and second traffic channels is an internet traffic
channel for communicating via the internet using internet
14 protocol and the other of said first and second traffic channels is
a radio channel for communicating via said high power wireless
16 base station.

25. The method of claim 24, wherein said one traffic channel
2 routes data to an internet protocol address.

26. The method of claim 24, wherein said first traffic channel
2 is said internet traffic channel and said second traffic channel is said radio
channel.

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27. The method of claim 24, wherein said first traffic channel
is said radio channel and said second traffic channel is said internet traffic
channel.

28. The method of claim 24, wherein:
said first and second traffic channels communicate with first and second
base stations respectively and said first and second base
stations communicate with a mobile switching center; and
said mobile switching center determines whether to execute a handoff
and instructs said first and second base stations when to create
said second traffic channel and terminate said first traffic
channel.

29. The method of claim 28, wherein data communicated by
said first and second base stations include neighbor cell lists.

30. The method of claim 24, wherein said determining whether
to execute a handoff from said first cell to said second cell is based on
reported strengths of the signals received from said first and second cells,
wherein the reported signal strength with said other of said cells
communicating via a low power wireless local site network is greater than the
actual strength of the received signal.

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31. A method of placing a call via a mobile switching center to a mobile terminal registered in a location area having a plurality of cells and a cybercell, comprising:

transmitting a page message from said mobile switching center to radio base stations in the location area and to a cyber base station serving said cybercell;

transmitting a wireless signal with said page message by said radio base stations;

transmitting an internet message with said page message by said cyber base station;

transmitting a low power wireless signal with said page message by a low power wireless local site network serving said cybercell;

responding from said mobile terminal to the base station serving the cell providing service to the mobile terminal, where when said mobile terminal is being provided service by a wireless local site network serving a cybercell, said mobile terminal response is sent to said cyber base station as an internet protocol response message via said internet; and

establishing a voice path from said mobile terminal to said mobile switching center via said wireless local site network, the internet and said cyber base station.

32. The method of claim 31, wherein said voice path carries data in internet protocol packets between said cyber base station and said wireless local site network.

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2 33. The method of claim 32, wherein a voice client at said
wireless local site network adds internet protocol overhead to data received
4 from said mobile terminal and to be sent from said wireless local site network
to said cyber base station, and removes internet protocol overhead from data
received from said cyber base station.

2 34. A method of placing a call to a phone via a mobile
switching center from a mobile terminal served by a cybercell, comprising:
transmitting a call origination message from said mobile terminal to a
4 wireless local site network serving said cybercell;
transmitting an internet protocol message with said origination message
6 from the wireless local site network over an internet to an internet
protocol address at a cyber base station providing an interface to
8 said mobile switching center;
paging the called phone; and
10 establishing a voice path from said mobile terminal to said mobile
switching center via said wireless local site network, the internet
12 and said cyber base station.

2 35. The method of claim 34, wherein said wireless local site
network is connected to the internet by an always-on broadband connection,
and said transmitting an internet protocol message with said origination
4 message from the wireless local site network over the internet to an internet
protocol address at a cyber base station comprises transmitting said internet
6 protocol message on said always-on broadband connection.

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36. The method of claim 34, wherein said voice path carries
data in internet protocol packets between said cyber base station and said
wireless local site network.

37. The method of claim 36, wherein a voice client at said
wireless local site network adds internet protocol overhead to data received
from said mobile terminal and to be sent from said wireless local site network
to said cyber base station, and removes internet protocol overhead from data
received from said cyber base station.